December 15, 2003

Dennis Groover
WestPoint Stevens
P.O. Box 71
West Point, GA 31833

Re: TMDL Development for Twitty's Creek

Dear Mr. Groover:

Thank you for your continued interest in the development of a Total Maximum Daily Load (TMDL) for Twitty's Creek. I am responding to the letter you sent to Raed EL-Farhan of the Louis Berger Group, Inc., on November 21, 2003. Please see the questions and answers below.

1. **Q:** One of your slides referred to assessments that indicated the benthic community is moderately impaired. Is it possible to get copies of these assessments?

   A: Please refer to the attached bench sheets and metric summaries for benthic assessments from 1990 to the present.

2. **Q:** How quick would the benthic community rebound following the upgrade of the WWTP? Is more than one year required? WPS withdraws water for process purposes from Twitty's Creek just upstream of our WWTP discharge. For four of the last five years, drought conditions were prevalent. Is there a way to estimate the impact to the benthic community during periods when our WWTP discharge was a higher percentage of the total stream flow due to the drought conditions? Could this condition delay the rebound of the benthic community?

   A: Once a WWTP is upgraded, we would expect to observe an improvement in the benthic community within two years under normal flow conditions. It would take

substantially longer for the benthic community to completely "rebound," but we would expect to see a shift in the benthic community from one dominated by pollution-tolerant species to one with more biodiversity.

During a variety of flow conditions, DEQ observed a marked difference between the benthic communities at the stations upstream and downstream of the WWTP. It is possible that during times of drought (when the WWTP effluent constitutes an increased percentage of the flow in Twitty's Creek), this effect could be exacerbated; however, we have no data to confirm or discount this.

3. **Q:** Siltation is given as the cause of the impairment based on the 2002-303(d) list. However, your slides indicated that the common stressors that you are investigating as causing the impairment include organic matter, nutrients, pH, temperature, and toxics as well as sediment (siltation). What was the basis of listing siltation in the 303(d) list? Are there any reports indicating the procedures utilized in establishing the cause of impairment and why the original conclusion was changed?

   A: Siltation was listed on the 2002 303(d) list as the cause of the Twitty's Creek benthic impairment. The best professional judgement of the regional biologist is frequently relied upon to help establish the cause(s) of impairment in waterbodies not meeting the Aquatic Life Use. According to the 305(b) guidance, Regional Biologists are responsible for collecting aquatic macroinvertebrates and also for documenting supplemental information, such as: factors observed in the watershed that may be affecting the benthic community; recent changes in activity in the watershed that may have affected the more recent bioassessments; and whether those changes are likely to affect the benthic community for a short or long term basis. The 305(b) guidance indicates the procedures utilized in establishing the cause of impairment and may be viewed on the DEQ website at http://www.deq.state.va.us/wqa/pdf/305b/305brev.pdf.

   EPA requires that the stressor identification process be used for TMDL development on biological impairments. The stressor identification document may be viewed at http://www.epa.gov/ost/biocriteria/stressors/stressorid.pdf. We use the stressor identification process to comprehensively look at all available data to determine the most probable stressor on the benthic community. We recently sampled for metals (dissolved and sediment) in Twitty's Creek as part of the stressor identification process; however, it will be several months before we will receive those data. We will provide you with the results of the metals testing when we receive them from the lab. By following the EPA protocol, we found that siltation was not the cause of benthic imapirment in Twitty's Creek. A stressor identification report is being prepared by the Louis Berger Group, (DEQ's contractor for the Twitty's Creek TMDL), that will detail the reasons for changing the original conclusion. You will be provided with a copy of this report once it has been approved.

5. **Q:** Virginia DEQ performed toxicity testing in April 2003. Your slides indicated there was a statistical difference noted in the toxicity report for fish growth between control and impaired station samples. Is it possible to obtain a copy of the toxicity report?

   A: There is currently no formal report on the toxicity testing for fish growth between control and impaired station samples. Once this document is produced, you will be provided with a copy.

6. **Q:** Are copies available of the monitoring reports from the various stations in the segment of Twitty's Creek? Is there any information on the benthic studies?

   A: Twitty's Creek monitoring data are available on our website at https://www.deq.state.va.us/webapp/wqm_station.get_parm2. Using the drop-down box, click on Twittys Creek and then click on Query. Attached you will find a map of Twittys Creek that includes site numbers that will aid you when viewing monitoring data. Information on the benthic studies is attached.

7. **Q:** It was noted that the WPS WWTP is periodically toxic with 6 out of 19 recorded samples from 1999 to 2003 failing toxicity tests. Is there a list available that indicates the dates of these failures?

   A: Please refer to the attached spreadsheet containing dates of toxicity failures.

8. **Q:** There was much discussion regarding past mining operations in the area. Have you discovered any additional information?

   A: The Department of Mines, Minerals, and Energy (DMME) informed DEQ that old copper mines were present in the Twitty's Creek watershed, but none were active since the 1800s. The mine near Twitty's Creek has been abandoned for 150 years or so and was very small scale. Representatives from the Louis Berger Group inspected an abandoned mine on property owned by Resource Management, Inc. on Copper Mine Road. They noted that the abandoned mine shaft had a spring flowing from it and large amounts of Cladophora were present, indicating nutrient enrichment. It did not appear to be toxic, but this can not be confirmed without chemical/metals testing.

We will be having the final public meeting on the development of a TMDL for Twitty's Creek in March, 2004. I will contact you once the meeting has been scheduled. If you have any other questions or concerns, please don't hesitate to call.

Sincerely,

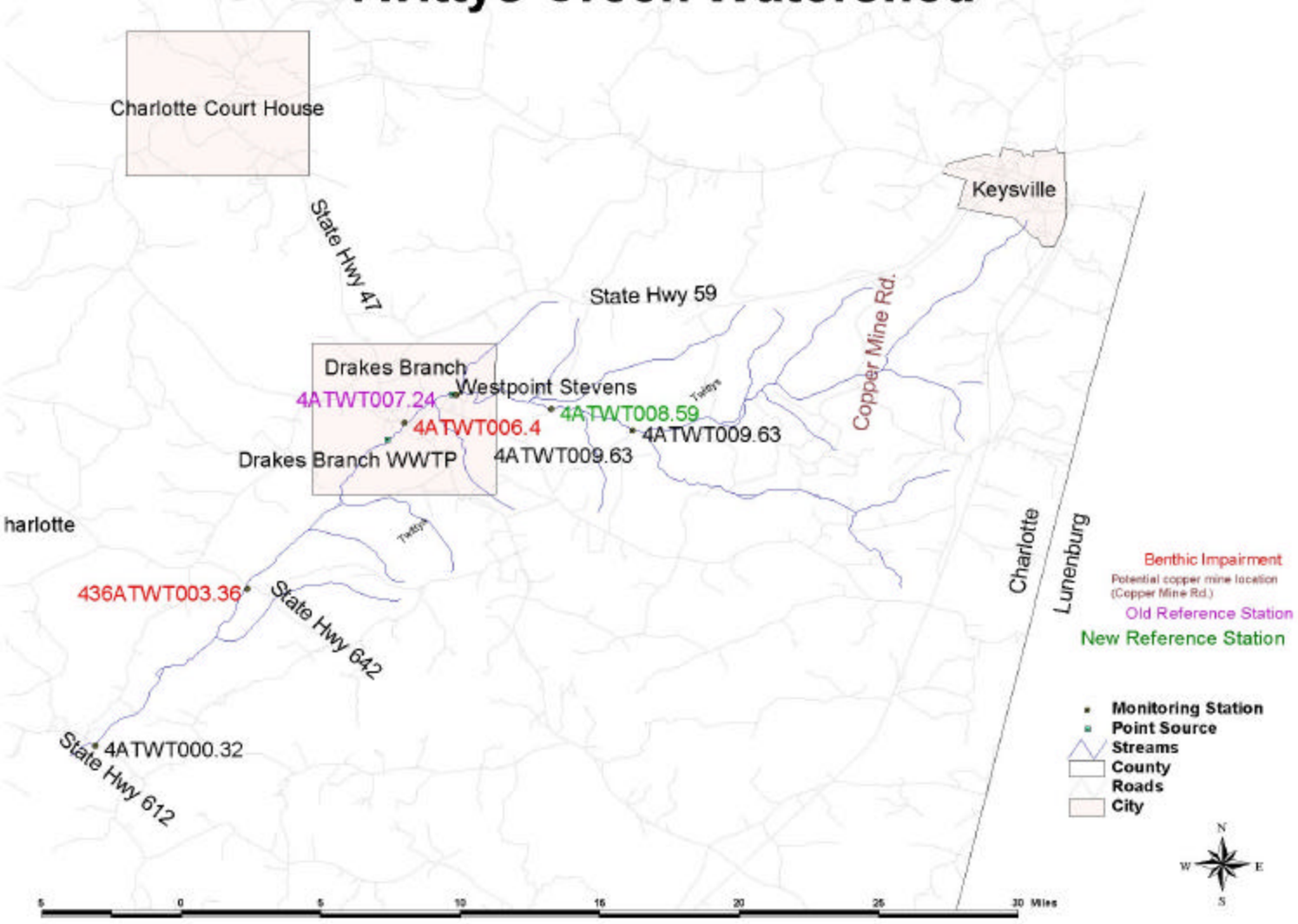
Kelly J. Wills
TMDL Coordinator, SCRO

Attachments

Bioassessment results for Twitty's Creek.

Year	Season	Impairment Rating	
		4ATWT003.36	4ATWT006.40
1990	Fall	Moderate	Moderate
1991	Spring	Moderate	Moderate
1991	Fall	Moderate	Moderate
1992	Spring	Moderate	Moderate
1992	Fall	Moderate	Moderate
1993	Spring		Moderate
1993	Fall	Slight	Slight
1994	Spring	Slight	Slight
1994	Fall	Moderate	Not Impaired
1995	Spring	Moderate	Moderate
1995	Fall		
1996	Spring	Moderate	Moderate
1996	Fall	Moderate	Moderate
1997	Spring	Moderate	Moderate
1997	Fall	Moderate	Not Impaired
2002	Spring	Slight	Moderate
2002	Fall	Moderate	Moderate

Twittys Creek Watershed



Westpoint Stevens Inc Drakes Branch Permit #VA0050822
Outfall #001
Receiving Stream: Twitty's Creek

Due Date	Date Collected	Parameter Description	Concentration Min	Notes
7/10/99	6/16/99	TOXICITY, FINAL, ACUTE	100%NOAEC	
11/10/99	10/10/99	TOXICITY, FINAL, ACUTE	100%NOAEC	
?	6/1/00	TOXICITY, FINAL, ACUTE	0%NOAEC	Using PVA, see fax
?	6/21/00	TOXICITY, FINAL, ACUTE	0%NOAEC	Using PVA, see fax
9/10/00	8/21/00	TOXICITY, FINAL, ACUTE	100%NOAEC	
?	9/6/00	TOXICITY, FINAL, ACUTE	100%NOAEC	has metals testing, too. See fax.
1/10/01	11/29/00	TOXICITY, FINAL, ACUTE	100%NOAEC	
3/10/01	2/20/00	TOXICITY, FINAL, ACUTE	100%NOAEC	
7/10/01	6/10/01	TOXICITY, FINAL, ACUTE	100%NOAEC	
8/10/01	7/10/01	TOXICITY, FINAL, ACUTE	100%NOAEC	
11/10/01	10/16/01	TOXICITY, FINAL, ACUTE	100%NOAEC	
3/10/02	2/12/02	TOXICITY, FINAL, ACUTE	100%NOAEC	
?	5/23/02	TOXICITY, FINAL, ACUTE	0%NOAEC	failed: DO a little low for this test, failure not reported on DMR!
7/10/02	6/5/02	TOXICITY, FINAL, ACUTE	100%NOAEC	
9/10/02	8/10/02	TOXICITY, FINAL, ACUTE	100%NOAEC	
1/10/03	12/4/02	TOXICITY, FINAL, ACUTE	0%NOAEC	
?	4/10/03	TOXICITY, FINAL, ACUTE	0%NOAEC	high Copper in sample, marginal failure
?	4/24/03	TOXICITY, FINAL, ACUTE	0%NOAEC	Complete failure
?	8/11/03	TOXICITY, FINAL, ACUTE	100%NOAEC	

STATION ID	DATE/TIME	TEMP (C)	pH	DO (mg/l)	SPEC. COND (µs/sec)	BAROMETRIC PRESS (mm of Hg)
4ATWT006.40	08/14/2003 1420	24.67	7.25	7.52	98	757.2
Route 47 bridge	08/14/2003 1625	25.18	7.22	7.06	97.7	755.8
	08/14/2003 1740	25.3	7.19	7.14	98.8	755.6
	08/14/2003 1953	25.31	7.1	7.07	98.7	756.5
	08/14/2003 2135	25.36	7.12	7.07	96.1	757.4
	08/14/2003 2309	25.19	7.13	6.81	100.5	757.6
	08/15/2003 0045	25.04	7.11	6.88	101.2	757.6
	08/15/2003 0218	24.76	7.1	6.55	103.7	757.6
	08/15/2003 0343	24.54	7.23	6.53	101.6	756.6
	08/15/2003 0511	24.32	7.2	6.62	99	756.6
	08/15/2003 0833	23.95	7.19	7.42	102.8	756.4
	08/15/2003 1025	24.09	7.16	7.51	101.3	755.4
	08/15/2003 1145	24.36	7.15	7.53	101.7	755
4ATWT003.36	08/14/2003 1437	24.82	7.23	7.44	100.7	757.2
Route 642 bridge	08/14/2003 1600	25.13	7.22	7.21	100.6	756.8
	08/14/2003 1715	25.17	7.21	6.76	100.3	756.2
	08/14/2003 2011	24.91	7.13	7.22	104.4	757
	08/14/2003 2150	24.63	7.13	6.91	103.6	757.8
	08/14/2003 2325	24.46	7.17	6.96	103.7	758.2
	08/15/2003 0100	24.22	7.15	6.82	104.3	758
	08/15/2003 0234	23.89	7.14	6.82	104.9	757.6
	08/15/2003 0357	23.68	7.16	6.59	105	757.2
	08/15/2003 0525	23.47	7.19	6.83	105.6	757.2
	08/15/2003 0800	23.18	7.15	7.26	106.7	758.5
	08/15/2003 0955	23.38	7.15	7.65	106	756.4
	08/15/2003 1115	23.77	7.14	7.5	106.9	755.5
4ATWT000.32	08/14/2003 1448	24.35	7.16	7.14	106.9	757.5
Sylvan Hill Road bridge	08/14/2003 1610	24.61	7.15	6.7	106.9	757
	08/14/2003 1725	24.56	7.13	6.55	107.7	756.5
	08/14/2003 2023	24.55	7.05	6.82	108.8	757.6
	08/14/2003 2207	24.54	7.06	6.88	108.8	758.4
	08/14/2003 2338	24.41	7.09	6.81	109.4	758.7
	08/15/2003 0116	24.24	7.09	6.5	92.1	758.6
	08/15/2003 0249	24.01	7.08	6.63	110	758
	08/15/2003 0411	23.78	7.06	6.26	110.5	757.5
	08/15/2003 0539	23.49	7.12	6.64	83.1	757.5
	08/15/2003 0815	23.2	7.11	7.22	111.9	757.5
	08/15/2003 1010	23.27	7.09	7	112.3	756.3
	08/15/2003 1125	23.56	7.08	7.26	113	755.6